FEATURES OF THE INVENTION INCLUDE:

1. A chimeric protein comprising:

1) a first polypeptide possessing matrix modification activity; and

2) a second polypeptide possessing regenerating activity for neural cells,

said first and second polypeptides not occurring together in nature and being joined together in said chimeric protein.

2. The chimeric protein of claim 1 wherein the first polypeptide is selected from the group consisting of chondroitinases, hyaluronidases, and matrix metalloproteinases.

3. The chimeric protein of claim 2 wherein the chondroitinase is selected from the group consisting of chondroitinase ABC exolyase, chondroitinase ABC endolyase, Chondroitinase AC, and Chondroitinase B.

4. The chimeric protein of claim 2 wherein the matrix metalloproteinase is selected from the group consisting of MMP-9, MMP-2, and pepsin.

5. The chimeric protein of claim 1 wherein the second polypeptide is selected from the group consisting of neural cell adhesion molecules (N-CAM), L1, N-CAM, myelin-associated glycoproteins, laminins, fibronectins, cadherins, Tenascins, FnA-D, M1 antibodies, netrins, BSP-2 (mouse N-CAM), D-2, 224-1A6-A1, NILE, Nr-CAM, TAG-1 (axonin-1), Ng-CAM, F3/F11, integrins, J1, Fasciclin III, MAG molecules and neurotrophic factors.

6. The chimeric protein of claim 5 wherein the second polypeptide is L1.

7. The chimeric protein of claim 5 wherein the cadherin is selected from the group consisting of N-cadherin, E-cadherin, P-cadherin, L-CAM, B-cadherin, and T-cadherin.

8. The chimeric protein of claim 5 wherein the tenascin is Tenascin-C.

9. The chimeric protein of claim 5 wherein the neurotrophic factor is selected from the group consisting of NGF, BDNF, NT-3, IGF, EGF, VEGF, FGF, PDGF, TGF □ and □ and GGF

10. The chimeric protein of claim 1 wherein the first polypeptide is joined to the second polypeptide by a peptide linkage.

11. The chimeric protein of claim 9 wherein the peptide linkage is an Fc portion of an immunoglobulin.

12. A method for enhancing nervous system repair and regeneration by administering to damaged cells of the nervous system a chimeric protein comprising:

1) a first polypeptide possessing matrix modification activity; and

2) a second polypeptide possessing regenerating activity for neural cells,

said first and second polypeptides not occurring together in nature and being joined together in said chimeric protein.

13. The chimeric protein of claim 12 wherein the chondroitinase is selected from the group consisting of chondroitinase ABC I, chondroitinase ABC II, Chondroitinase AC, and Chondroitinase B.

14. The method of claim 12 wherein the chondroitinase is chondroitinase ABC I.

15. The method of claim 12 wherein the matrix metalloproteinase is selected from the group consisting of MMP-9, MMP-2, and pepsin.

16. The method of claim 15 wherein the second polypeptide is L1.

17. The method of claim 15 wherein the cadherin is selected from the group consisting of N-cadherin, E-cadherin, P-cadherin, L-CAM, B-cadherin, and T-cadherin.

18. The method of claim 15 wherein the tenascin is Tenascin-C.

19. The chimeric protein of claim 5 wherein the neurotrophic factor is selected from the group consisting of NGF, BDNF, NT-3, IGF, EGF, VEGF, FGF, PDGF, TGF □ and □ and GGF

20. The method of claim 11 wherein the first polypeptide is joined to the second polypeptide by a peptide linkage.

21. The method of claim 19 wherein the peptide linkage is an Fc portion of an immunoglobulin.

22. A pharmaceutical composition comprising a chimeric protein in combination with a pharmaceutically acceptable carrier, wherein the chimeric protein comprises:

1) a first polypeptide possessing matrix modification activity; and

2) a second polypeptide possessing regenerating activity for neural cells,

said first and second polypeptides being joined by a peptide linkage in said chimeric protein.

23. The method of claim 12 wherein the second polypeptide is selected from the group consisting of neural cell adhesion molecules (N-CAM), L1, N-CAM, myelin-associated glycoproteins, laminins, fibronectins, cadherins, Tenascins, FnA-D, M1 antibodies, netrins, BSP-2 (mouse N-CAM), D-2, 224-1A6-A1, NILE, Nr-CAM, TAG-1 (axonin-1), Ng-CAM, F3/F11, integrins, J1, Fasciclin III, MAG molecules and neurotrophic factors.

24. The method of claim 12 wherein the first polypeptide is selected from the group consisting of chondroitinases, hyaluronidases, and matrix metalloprotienases.